



Fifty-Eighth Annual Report of the Visitors of the University Observatory for 1932.

Physical &
Applied Sci.
Serials

BOARD OF VISITORS, 1933.

- THE VICE-CHANCELLOR (Rev. F. J. Lys, M.A., Provost of Worcester).
 THE SENIOR PROCTOR (T. F. Higham, M.A., Trinity).
 THE JUNIOR PROCTOR (J. G. Edwards, M.A., Jesus).
 THE ASTRONOMER ROYAL (Sir F.W. Dyson, K.B.E., Hon. D.Sc., F.R.S.).
 THE DIRECTOR OF THE CAMBRIDGE OBSERVATORY (Sir A. S. Eddington,
 Hon. D.Sc., F.R.S.).
 THE RADCLIFFE OBSERVER (H. Knox-Shaw, M.A., D.Sc., Trinity).
 T. W. CHAUNDY, M.A., Student of Christ Church.
 G. M. B. DOBSON, M.A., D.Sc., F.R.S., Lincoln, Reader } Until Oct., 1935.
 in Meteorology.
 J. S. E. TOWNSEND, M.A., F.R.S., Fellow of New College. }
 F. A. LINDEMANN, M.A., F.R.S., Fellow of Wadham } Until Oct., 1940.
 and Student of Christ Church.

The present report refers to the calendar year 1932.

I. Staff.

The staff remained as stated in last year's Report, except that the Director, after a brief visit to the Observatory in January, permanently took over his duties at the end of June. He wishes to record the excellent state in which he found the Observatory after the two years during which it was in charge of Mr. Bellamy. The Observatory was in an excellent state of repair, and work was being vigorously prosecuted.

II. Work.

Apart from the lectures offered by the Director in the Michaelmas Term, and the usual instruction in Practical Astronomy by Mr. Bellamy, the work of the Observatory has fallen into the three main divisions of astrophysics, astrographic catalogue, and seismology.

Astrophysics. It is proposed that a larger and larger portion of the work and resources of the Observatory should be devoted

in succeeding years to the study of astrophysics, and in particular to the study of the physical nature of the sun. In furtherance of this proposal the University, on the initiative of the Board of Visitors, made a special grant of £400 to the Observatory for the study of solar radiation. The necessary apparatus, including a Hilger All-Metal Medium Glass Spectrograph, was purchased during the summer and erected in a small wooden shelter, built by G. Neale, on the roof of the Observatory. Numerous experiments during the summer have resulted in an arrangement of apparatus which will permit the accurate determination of the absolute energy distribution in the pure continuous spectrum, originating from the centre of the solar disc. It is hoped that the observational part of this investigation will be completed during the coming summer.

Plates showing the spectrum of solar granulation were secured by the Director with the full aperture of the 72-inch telescope in Victoria during the summer of 1931. The measurement of these plates is now in progress with the aid of a registering microphotometer, which has been kindly loaned to the Observatory until February by the Astronomer Royal, Sir Frank Dyson. This machine was first refitted with a Moll thermocouple and galvanometer, an accurate slit and apochromatic objectives, and after numerous trials is now working satisfactorily. It is hoped that some three hundred tracings will have been obtained with this machine before it is returned in February.

The suggestion has been made by Menzel and others that the nuclei of planetary nebulae are white dwarf stars. If this is the case, the lines in their spectra should show a measurable Einstein displacement. Mr. G. Cillié, Hertford, a graduate student of Professor Milne, has been, and is now, engaged in measuring some spectra of these nuclei, photographed by the Director with the 72-inch telescope at Victoria.

Astrographic Catalogue. Shortly before 1928 Professor Turner undertook to complete zones $+32^\circ$ and $+33^\circ$, definitely relinquished by Potsdam. With many interruptions,

due chiefly to comparisons of the Vatican measures with the Helsingfors Catalogue, this work has been in progress since then, and its present state is shown in the accompanying table :

<i>Plates.</i>		<i>Obtained.</i>	<i>Measured.</i>	<i>Reduced.</i>
Before 1932	. .	62	24	4
In 1932	. .	17	34	54
Total	. . .	79	58	58

Work on the astrographic catalogue is under the direction of Mr. Bellamy, who, single-handed, takes the plates, completes the reductions, and supervises the measures made by Mr. Cook. The cost of the measures is met out of a grant of £200 made by the Royal Society, which the Observatory owes to the strong representations of the Astronomer Royal, Sir Frank Dyson. Apart from the work in progress, as shown in the table, considerable time has been spent in correcting a slight mechanical defect in the differential slow motion gears, and in correcting the exceedingly stiff motion of the telescope in right ascension, finally traced to a missing grease cup on the main bearing of the polar axis, and incomplete support by the upper bearing.

Seismology. The Observatory in particular and British seismology in general has suffered an irreparable loss in the death of Dr. J. E. Crombie. Not only did he make provision for the installation of the seismographs in the basement of the Observatory, but for more than ten years he gave generously in support of the International Seismological Summary, initiated by Professor Turner.

His death has made it necessary to make other financial arrangements for the work on the Summary, and it is a pleasure to report that the B.A. Seismological Committee has made it possible to continue this work until the meeting of the International Union of Geodesy and Geophysics at Lisbon in October 1933. At this meeting a long postponed decision will be reached as to the future nature of the Summary, and its future home.

During the year under review the preparation of the Summary by Mr. Hughes and Miss Bellamy has continued as before. The last two quarters for the earthquakes of 1928 were prepared, printed, and distributed, and the first quarter for 1929 is now in the printer's hands. The two Milne-Shaw instruments have been in almost continuous operation throughout the year, and have recorded over 130 earthquakes.

III. Miscellaneous.

In order to make possible a comparison between the meteorological conditions at the Radcliffe Observatory and some other site in Oxford, a thermometer screen and rain gauge, the property of the Meteorological Office, were set up in the Observatory grounds in November 1930. Daily readings have been made by Mr. Cook since then, and a comparison of the readings over a period of two years has shown similarity of conditions at the two stations. This comparison has now been terminated and the instruments returned to the Meteorological Office. A letter has been received from the Director of the Meteorological Office, Dr. G. C. Simpson, conveying to the Board of Visitors to the Observatory his thanks for their services in the comparison.

In addition to the usual astronomical periodicals and observatory publications received during the year, Mr. Bellamy has generously presented to the Observatory a duplicate set (unbound) of the Monthly Notices from 1910 to the current year, and a scarce copy of Gassendi's *Institutio Astronomica*, 3rd edition, London (1683).

The two domes were painted during the year, and some minor repairs were made to the roof drains.

H. H. PLASKETT.

UNIVERSITY OBSERVATORY,
OXFORD.

January 16, 1933.